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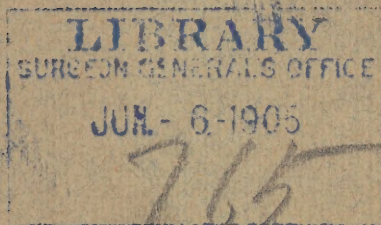
PACKARD (H.)

SURGICAL OPERATIONS

BY

HORACE PACKARD, M. D.,

1892.



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SECOND SERIES.

ANNUAL REPORT
OF
SURGICAL OPERATIONS

PERFORMED BY

HORACE PACKARD, M. D.,

ASSOCIATE PROFESSOR OF SURGERY, BOSTON UNIVERSITY SCHOOL OF MEDICINE,

FOR THE YEAR 1892,

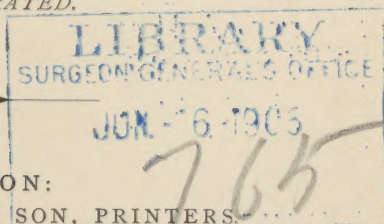
WITH A REPORT OF A FOURTH SERIES OF

ABDOMINAL OPERATIONS,

COMPRISING TWENTY-FIVE CASES.

ILLUSTRATED.

BOSTON:
ALFRED MUDGE & SON, PRINTERS.
1893.



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INTRODUCTION.

The following pages are prepared —

First — For the purpose of laying before my professional colleagues a survey of my work in the field of Surgery during the past twelve months.

Second — As an acknowledgment of the courtesy extended to me by my fellow-workers in the field of medicine, in placing in my hands the material from which this array of clinical matter has been compiled.

Third — With the hope that the successes and failures herein portrayed may prove of interest, as well as aid, to my colleagues.

Fourth — That I may preserve in a compact form an annual *résumé* of my surgical work.

It is my purpose to include in this epitome a tabulated report of all cases operated on; a detailed description of all rare and instructive cases which may be of value for future reference; an allusion to such new methods and devices as my experience has found of service; and a reflection of such original methods, inventions, and improvements as have resulted from my own labor in a department of professional work to which my whole time and strength are devoted.

January, 1893,

362 COMMONWEALTH AVE., BOSTON.

GENERAL TABLE.

CASES.	Number of Operations.	Cured.	Relieved.	Not Relieved.	Died.	Suppuration.	No Suppuration.
Abscess	17	11	3	1	2	17	-
“ Pyothorax	2	2	-	-	-	2	-
Appendicitis	5	4	-	-	1	5	-
Coccyx, Removal of	1	1	-	-	-	-	1
Fractures	10	9	-	-	1	1	9
Gall Stones, Operation for	1	-	-	-	1	-	1
Genito-urinary Organs, Male	17	13	3	-	1	3	13
“ “ “ Female	133	118	4	3	5	12	121
Hernia	1	1	-	-	-	-	1
Hydrothorax	1	-	-	-	1	-	1
Joints, Operations on	8	1	3	4	-	6	2
Mastoiditis	1	-	-	-	1	1	-
Neurectomy	2	2	-	-	-	-	2
Nose, Deviated Septa and Polypi	4	4	-	-	-	2	2
Rectum and Anus (Hemorrhoids, fistulae, fissures, and malignant growths)	19	18	-	1	-	10	9
Removal of Needle	1	1	-	-	-	-	1
Respiratory Tract	2	1	-	1	-	-	2
Skin, Skin Grafting, and Plastic Opera- tions	5	5	-	-	-	1	4
Tenotomy	1	-	1	-	-	-	1
Tumors, Mammary	11	10	1	-	-	3 slight	8
“ not elsewhere enumerated	3	2	1	-	-	1	2
Wounds, Incised	3	3	-	-	-	1	2
Total	248	206	15	10	13	65	182

RECENT EVOLUTION IN SURGERY.

ANTISEPTIC SURGERY.

Antiseptic surgery maintains substantially the same position in the surgical world that it has since the time of Lister. Methods have changed, but all are directed against wound contamination. So-called Aseptic surgery has been forced to the front with the thought of superseding Antiseptic surgery; Since all steps, such as scrubbing with soap and water, the use of moist and dry heat (even though no chemical germicides are used), are measures adopted with the idea of the exclusion and destruction of germs of infection, they are, strictly speaking, antiseptic, and should be given that name. The career of a wound after an operation is the only proof of the efficiency of the antiseptic method; if it be a convalescence from which those phenomena are absent which we are accustomed to attribute to putrefactive decomposition, it is an evidence that our antiseptic method has been a good one, and we are warranted in applying the term aseptic to the wound and to the convalescence.

We cannot afford to dispense with the term antiseptic, for it expresses, better than any other yet devised, the course which every surgeon takes at the present day (varying, according to his conception of the principle), preparatory to, and during the course of, every surgical operation.

ANÆSTHESIA.

The comparative desirability of ether and chloroform, for the induction of surgical anæsthesia, continues the absorbing theme in medical journal literature bearing upon this subject.

One cannot follow the literature of anæsthesia as it appears in medical journals, even for a short time, without being impressed with the frightful mortality under chloroform anæsthesia as compared with that under ether. Without exception, wherever comparison in a large

number of cases has been noted, ether has made by far the best showing, *e. g.* :—

* ST. BARTHOLOMEW'S HOSPITAL.

In approximately 2,000 cases	. .	Ether, 4 deaths.
“ “ 2,000 “	. .	Chloroform, 13 deaths.

PROCEEDINGS OF THE GERMAN CHIRURGICAL SOCIETY.

470 Ether administrations	. . . . .	No deaths.
22,656 Chloroform administrations	. . . . .	6 deaths.

There will be observed a wide divergence in the comparative number of cases, yet examination of the figures show that there was one death in every 3,776 administrations of chloroform.

REV. MÉDICALE DE LA SUISSE ROMANDE, 1891, VOL. II.

A *résumé* in the above journal, gathered from a large number of authors, credits

Ether,	1 death in 16,675 cases.
Chloroform, 1 “ “	3,749 “

It would seem that the above figures are enough to condemn chloroform as a general anæsthetic.

The claim that chloroform acts more quickly is unfounded ; that it is followed with less nausea and vomiting than ether is also an error.

The Hyderabad Chloroform Commission has conducted a large number of experiments with chloroform upon dogs, the results of which seem to refute our pre-existing ideas regarding the action of chloroform upon the heart.

It claims that in death from chloroform the heart continues to pulsate after respiration has ceased. Clinical experience, however, with the human subject does not fully substantiate this claim. A new commission has been appointed to make further investigations.

A NEGLECTED METHOD.

Dr. Chas. McBurney of New York has recently resuscitated the practice of placing a broad elastic tourniquet around each of the thighs, as well as around both upper limbs, before anæsthesia is begun, thus shutting off from the general circulation a considerable portion of the body.

He claims that thereby, anæsthesia is rendered much more rapid, with a correspondingly rapid recovery.

METHODS OF ANÆSTHESIA.

Chloroform. An improved method of chloroform anæsthesia has been devised by Krone and Sessman of London, surgical instrument makers. This has received recent commendation in American medical literature, as enhancing the safety of chloroform anæsthesia. It is, however, impracticable for ether. It is a modification of the "Junker" system, which has long been in use in Europe.

Ether. Anæsthesia with etherated air has proven an unqualified success.* It is, in the simplest terms, the adaptation of the "Junker" chloroform system to ether. See p. 12.

SKIN GRAFTING.

Skin grafting has received an impetus through the now widely employed Thiersch's method. Though it is not a device of the past year, it has been more widely employed during the past twelve months than ever before, and with such universally satisfactory results, that it has become a well established surgical procedure.

The most excellent description † of the technique of this method, which has come to my eye, is that by Theodore Dunham, M. D., of the New York Post-Graduate Medical School.

For the rapid cicatrization of large areas, such as result from burns, etc., this method of skin grafting marks one of the greatest departures of modern surgery.

NEURECTOMY FOR TIC DOULOUREUX.

Inveterate cases of facial neuralgia have heretofore been relieved through the excision of a portion of one or more branches of the Trigemini. The points of section being at the supra-orbital foramen, the infra-orbital foramen and canal, and the mental foramen and canal for the inferior maxillary division.

It has recently been proposed to make resection of the second and third divisions of the nerve, at the foramen rotundum and ovale.‡

Dr. Rose has reported six operations where he made resection with removal of the Gasserian ganglion. More recently three operations

* *New England Medical Gazette*, Sept., 1892.

† *The Post-Graduate*, 1892, p. 292. (Report of case with description of method, p. 17, this pamphlet.)

‡ "The Surgical Treatment of Neuralgia of the Fifth Nerve," by Wm. Rose, M. B., F. R. C. S., London.

of this kind have been reported by Dr. Mixter* with prompt recoveries and complete relief.

TREATMENT OF CLUB FOOT.

During the past year wide interest has been manifested in the treatment of club foot. It is now the almost universal opinion that the treatment of club foot should be begun very soon after the birth of the child, and if such be persistently and intelligently carried out, while the bones of the tarsus are still in their infantile, plastic state, in every case a useful foot will result.

In neglected cases, where treatment is adopted later in life, some form of powerful continuous leverage appears to be the best method, supplemented, if circumstances call for it, by osteotomy of the tarsus.†

MORTON'S PAINFUL AFFECTION OF THE FOOT.

Mention has recently been prominently made in medical literature regarding a painful affection of the foot, especially of the fourth toe, known as Morton's, because Dr. T. G. Morton was the first to call attention to it about twenty years ago, and showed how it could be cured.

It is described as a peculiar and painful disorder of the metatarsophalangeal joint of the fourth toe.‡

The trouble is due to a bruising of the external phalangeal nerve distributed between the toes, and is a result of lateral compression from badly fitting shoes.

Resection of the head of the fourth metatarsal bone affords complete and permanent relief. The adoption of a shoe which would absolutely at all times be loose across the toes, might also give relief.

ELONGATED LIGAMENTUM PATELLÆ.

Attention has recently been called to the above condition as an explanation of certain obscure knee troubles and difficulties in locomotion.§

Cases are described in which the patella ligament was respectively three and one fourth inches long, three inches, two and three fourths inches, two and five eighths inches, three and one half inches, etc.

* *Boston Medical and Surgical Journal*, Vol. CXXV., No. 7.

† *Medical News*, October, 1892. *Medical Record*, November, 1892. *N. Y. Medical Journal*, November, 1892. Article by Dr. Geo. H. Earl, Mass. Hom. Med. Soc., October, 1892.

‡ *New York Medical Journal*, October, 1892. *Medical News*, October, 1892.

§ Elongation of the Ligamentum Patellæ as a factor in the production of certain Knee Troubles and Difficulties in Locomotion: *Medical Record*, Jan. 16, 1892.

Such a condition favors frequent dislocation of the patella, with falling, general weakness of the limbs, and awkwardness in gait.

The normal length of the patella ligament varies from about one half inch in children, to two inches in adult life.

The treatment proposed is the removal of a section of the elongated ligament.

FOREIGN BODIES IN THE KNEE JOINT.

The occasional presence of loose cartilages in the knee joint has long been recognized, and operation for their removal successfully performed.

Recently the idea has been advanced,* that very many of the sub-acute inflammatory conditions of the knee joint, characterized by weakness, a sprained feeling, stiffness, grating, tenderness on pressure, with possibly a history of having received a slight injury some time before, are, more frequently than otherwise, the result of overgrowth of portions of the *ligamenta alaria*, or from a portion of the sub-patella fat herniated into the joint; or even possibly some unusual distortion of the semilunar cartilage. It is advised that where such obscure affection persists, exploration of the knee joint under strict antiseptic measures is an eminently proper procedure.

SPASMODIC WRY NECK.

It is well known that spasmodic wry neck resists all the various forms of treatment which have heretofore been devised. Neurectomy of the spinal accessory nerve has been resorted to,† with most satisfactory results. This is performed by exposure of the nerve on the inner side of the sterno-mastoid muscle. It is reported that no serious inconvenience to the patient results from the paralysis of the muscle which follows.

HIP-JOINT DISEASE.

The literature of the past year on hip-joint disease shows gratifying progress in the intelligent and conservative treatment of this formidable malady.

* "An Unique derangement of the Knee Joint demanding Surgical Interference."—*Medical Record*, July, 1892.

† "Internal Disarrangements of the Joints, including Movable Bodies."—*New York Medical Journal*, December, 1872.

† Pamphlet published by Dr. Noble Smith.

The very excellent results reported* should encourage every physician to resort early in these cases to immobilization during the acute stage, with later, portable traction to restore the mobility of the joint.

It is most painful to one who is familiar with the early stages of *morbus coxarius* to have every now and then a pitiful case brought to his notice for which comparatively nothing has been done in its early, and presumably, curable stage, and where, as a result, violent inflammation and extensive destruction have resulted.

Following such a condition nothing better can be expected than shortening of the limb with ankylosis, and even this is almost too good to hope for, the ultimate result more frequently being exhaustion and finally death.

HIP-JOINT DISARTICULATION.

An important advance has been made in the technique of hip-joint amputation. It consists in a better control of hemorrhage during the operation than has ever before been attained.†

It is accomplished by transfixing the soft parts as high as possible, with two stout steel pins in such a way that they will pass, one beneath the femoral artery and vein in front, and the other beneath the gluteal vessels posteriorly. Elastic ligatures or pieces of tubing are then passed under the projecting ends of the pins in such a way as to effectually compress the blood vessels. Amputation is then performed by the oval method, the femur sawn through in the upper third of its shaft, and the head of the bone dissected out.

Excellent reports of the result of this method come from the pen of Dr. Wyeth, its originator‡, and by Dr. Keen, of Philadelphia.

RESTORATION OF SUNKEN NOSES.

The possibility of restoring sunken noses has recently been brought before the profession.§ Occasionally this condition exists as a congenital defect, but more often from the ravages of syphilis. Fairly good results have been attained by the adjustment of an artificial bridge composed of some inoxidizable material like platinum or gold.

* *New York Medical Journal*, April 30, 1892. "Results in Hip-Joint Disease, treated by Early Immobilization and Later by Portable Traction."

† *Medical News*, March 26, 1892.

‡ *International Journal of Surgery*, July, 1890.

§ "Restoration of Sunken Noses," by R. F. Weir, M. D., *New York Medical Journal*, Oct. 22, 1892.

THE LENGTHENING OF SHORTENED TENDONS, NERVES, ETC.

This is a procedure quite recently devised, and consists in partly cutting through the tendon at points a little distant and on opposite sides, followed by longitudinal splitting between these two points, and then fastening the overlapping portions with fine sutures. It is also proposed by the originator, Dr. J. Neely Rhoads, of Philadelphia, to apply this method to the lengthening of bones, as, for example, when one leg is shorter than the other.*

TONSILLOTOMY.

There is probably no operation of minor surgery which does more to relieve the suffering patient than the removal of enlarged and irritable tonsils.†

There has been and still is a prejudice in the minds of a portion of the profession against the removal of enlarged tonsils. There seems, however, to be no more reason why a chronically enlarged tonsil should not be removed, than a wart upon the face, a nasal polypus, an offending vermiform appendix, or hemorrhoids, which do not yield to medical treatment.

One has only to observe a healthy tonsil and the insignificant space which it occupies between the pillars of the fauces, and compare it with the enormously hypertrophied glands, which often nearly meet in the median line, and are the seat of frequently recurring follicular and peri-tonsillar inflammations.

Here are some of the conditions which it is claimed are aborted and cured by tonsillotomy: Anæmia, chorea, and other effects due to insufficiently aerated blood, quinsy, noisy respiration, snoring, cough, impaired voice and articulation, shortness of breath, palpitation of the heart, spasm of the glottis, broken sleep, nightmare, difficulty in swallowing, bad breath, disturbances of digestion and impaired taste, mouth breathing, hypersecretion of mucus in post-nasal catarrh, impaired nasal respiration and hearing, sometimes local pain, follicular pharyngitis and laryngitis.

SYMPHYSIOTOMY. (PUBEOTOMY.)

The operation of separating the pubic-symphysis in case of contracted pelvis, instead of craniotomy, has been revived. The term symphy-

* *Medical News*, Nov. 28, 1891.

† "Tonsillotomy and its Therapeutic Effects," *Medical Record*, Jan. 16, 1892.

siotomy is apparently not so desirable as pubeotomy, since the first may apply to section of any symphysis, while the second is restricted in its meaning to the pubic.

The recent successful results, over those of earlier times, must be credited wholly to antiseptic surgery. The operation seems to be based on reasonable theoretical grounds, and is certainly a great advance over the horrible operation, craniotomy.

THE SURGERY OF THE GALL BLADDER.

There is at the present time great activity in the line of gall bladder surgery,* and with gratifying results. Gall stones, empyema and dropsy of the gall bladder may call emphatically for operative measures. The operation consists in the incision of the abdominal wall over the site of the gall bladder, the exposure of the latter, with incision through its walls, evacuation of the contents, be it calculi, pus or serum, and suturing of the opening in the gall bladder to the abdominal wound.

If the common duct be permanently occluded, anastomosis of the wall of the gall bladder with the duodenum is the established practice.

ANÆSTHESIA WITH ETHERATED AIR.

AN IMPROVED METHOD OF ETHER ADMINISTRATION.

(Reprint from the New England Medical Gazette.)

In my last annual report I described, as fully as my experience at that time would permit, the features of ether anæsthesia by an improved method. Subsequent improvements in apparatus employed, with more extended experience in its use, now enable me to lay before my professional colleagues the details of a method which I believe to surpass anything which has heretofore been utilized; and, moreover, I am forced to the belief that it is a method which will become the universally adopted way of producing surgical anæsthesia. By common consent of all surgeons the world over sulphuric ether is the safest anæsthetic yet discovered.

Its objectionable features have been slowness of action, the unpleasant sensations (feeling of suffocation, etc.,) incident to inhaling it,

**Deutsche Medizin Wochenschr.* 1892. No. 23, p. 516. *American Journal Medical Sciences*, Sept. and Oct., 1892. *N. Y. Medical Journal*, Vol. LV. No. 5. *Boston Medical and Surgical Journal*, No. 17, 1892.

and the nausea and vomiting which have almost invariably followed its use.

It is not too much to claim with this new method that some of these objections are entirely obviated, and the others reduced to the minimum; *e. g.*, unconsciousness is induced in three minutes; complete surgical anæsthesia in from five to seven minutes; there is no sense of suffocation incident to its administration. In the majority of cases there is no vomiting during recovery from the anæsthetic, and where it does occur, it is usually scarcely more than one or two efforts at empty retching.

Now and then a peculiarly susceptible case will suffer prolonged retching and vomiting, but with this method the proportion is reversed, *viz.*: by the old method we always expect the majority of patients to suffer with retching and vomiting; with this method the majority recover without retching or vomiting.

The method consists in the adaptation of the Junker system of chloroform administration to ether.



1. AIR VALVE.

2. ETHERATED AIR RESERVOIR.

3. HOOD.

4. ETHER RESERVOIR.

5. HAND BULB.

I cannot claim that the idea is a new one, for undoubtedly the possibility of inducing anæsthesia by this method has suggested itself to

others; but as far as I know success has never before been achieved.

Simple as the apparatus now is, and simple as the method now seems, I would say that experiments and tests covered a period of eight months before final success was attained. My first practical attempts to etherize patients by this method were with the crudest possible apparatus; and the final development of the inhaler in its present simple and efficient form I attribute solely to the good fortune that the first two subjects were very susceptible to ether, succumbed to its influence, and were easily kept in a state of surgical anæsthesia throughout the operations.

My later experience showed me that in very many cases it was impossible with the same apparatus to carry patients beyond a state of intoxication.

The idiosyncrasies of ether patients are so marked that one quickly becomes impressed with the necessity, in any method of administration of, —

First. Perfect control of the ether.

Second. Perfect control of access of air to patient's respiratory tract.

These two conditions are more perfectly provided for in this new apparatus than in any that has yet been devised. The results of this method with the apparatus now used are in brief, —

First. The induction of surgical anæsthesia with from two to four drams of ether.

Second. The entire absence of discomfort (choking, suffocation, etc.) to the patient while taking it.

Third. The consumption of about two and one half ounces of ether per hour.

Fourth. The very rare occurrence of cyanosis.

Fifth. Recovery, with as a rule no vomiting, and when it does occur, but very little.

Sixth. Much less of the *malaise*, headache, etc., than results from the old method.

It will at once be seen that, by this method, there is an enormous economy in the use of ether, and that a great many of the unpleasant features of ether anæsthesia are obviated. I cannot better illustrate the importance of this last-mentioned desirable feature than by relating an experience with a boy of six years, upon whom I wired a compound fracture of the lower jaw. He objected strenuously to tak-

ing the ether, but after a few moments conversation he decided to take it voluntarily. When he found there was nothing unpleasant about it, he took it without the slightest resistance, and in a few moments was completely etherized, with the consumption of two drams. On making examination I found it desirable to defer the operation until the following morning, and the ether was at once removed. In a few moments he awakened and began to talk, and the following conversation ensued between the patient and his aunt, who was close at hand:—

Auntie—“Nice boy, good boy, took it well.”

Georgie—“’Twasn’t wet, . . . ’twas kind of dusty, . . . ’twasn’t hot, . . . ’twasn’t cold.”

Auntie—“How was it, dear?”

Georgie—“Just middlin’.”

The next morning, at the hour appointed for operation, on entering the room I said: “Well, Georgie, will you take ether for me this morning?” He answered without the slightest hesitancy: “Yes, sir”; and allowed himself to be placed upon the operating-table and etherized, without the slightest resistance. Two or three days later, on proceeding to make some change in the dressings, he asked me if I would please give him some ether.

Such an experience as this, with a child, was all so new to me that I thought it worthy of record, as being the best possible testimony of the desirable qualities of this method of anæsthesia.

DESCRIPTION OF THE INHALER.

The parts of the inhaler are none of them essentially new, although combined differently from any other inhaler heretofore used. The face piece is a Codman & Shurtleff nitrous oxide hood, fitted with a Clover bag and an air valve. The ether is contained in a four-ounce screw cap bottle, exactly like the Junker chloroform vial, fitted with a hand bulb and rubber tubing so that air can be forced through the volume of ether, and is conducted not directly into the hood but into the bag. The ether bottle can be either hooked into the buttonhole of the anæsthetist or suspended from a loop on one side of the hood. An essential feature is the rubber cushion around the edge of the hood, which makes it possible to exclude all air about the face; *i. e.*, whatever form of hood is used it must fit absolutely air tight about the mouth and nose.

I herewith append a table showing the exact amount of ether used

and time consumed in all the cases so anæsthetized, with the apparatus in its present perfected state.

CASE No.	Complete Anæsthesia in	Amount of Ether Required.	Total Time.	Total Amount of Ether Used.	CASE No.	Complete Anæsthesia in	Amount of Ether Required.	Total Time.	Total Amount of Ether Used.
1	9 min.	1½ oz.	20 min.	2½ oz.	23	6½ min.	1 oz.	64 min.	2¼ oz.
2	7½ "	1½ "	30 "	2½ "	24	8 "	"	60 "	3½ "
3	8 "	1½ "	29 "	3 "	25	9 "	"	35 "	2½ "
4	7 "	1½ "	36 "	2½ "	26	6½ "	"	34 "	1½ "
5	8 "	1 "	29 "	2½ "	27	8 "	"	36 "	1½ "
6	9 "	1½ "	47 "	3¼ "	28	8 "	"	21 "	1½ "
7	7 "	"	30 "	2 "	29	5 "	"	25 "	1½ "
8	8½ "	"	72 "	2½ "	30	8 "	"	115 "	3½ "
9	5 "	"	81 "	4 "	31	7 "	"	37 "	1½ "
10	9 "	"	65 "	3¼ "	32	8 "	"	62 "	3 "
11	12 "	1½ "	59 "	3½ "	33	15 "	"	85 "	3½ "
12	11 "	1 "	37 "	3 "	34	11 "	"	58 "	2½ "
13	10 "	"	32 "	2 "	35	8 "	"	38 "	1½ "
14	10 "	1 "	63 "	3½ "	36	6 "	"	87 "	2½ "
15	8½ "	"	18 "	1 "	37	5½ "	"	60 "	2½ "
16	6 "	"	50 "	2½ "	38	6 "	"	52 "	2½ "
17	12 "	"	60 "	2½ "	39	6 "	"	25 "	1½ "
18	7 "	"	62 "	2½ "	40	5 "	"	50 "	2½ "
19	8 "	"	43 "	2½ "	41	5 "	"	20 "	1½ "
20	4 "	"	55 "	2½ "	42	5 "	"	83 "	3½ "
21	10 "	"	100 "	3½ "					
22	8 "	"	55 "	1½ "					
Total, 332 min.					29½ ³ / ₄ oz.				
210 min.					103½ ³ / ₄ oz.				

Average time required for anæsthesia, 7½³/₄ minutes.

Average amount of ether required for same, 5½ + drams.

Average total duration of anæsthesia, 50½ minutes.

Average total amount of ether consumed, 2½¹/₄ ounces.

The forty-two patients have been etherized on a total of about 5¾ lbs. of ether. In only ten of the forty-two cases has there been vomiting which would at all compare with that usually met. It has been my experience that the most satisfactory way of employing ether by this method is to purchase the four-ounce cans of Squibb's preparation. This always insures perfectly fresh ether for every case, and I have never yet had an operation so prolonged that this quantity proved insufficient. A recent operation which occupied an hour and forty minutes required a total of three and one-third ounces of ether. The quarter pound cans prepared by Squibb actually contain 100 grams.

DIRECTIONS.

Place two to four ounces (according to the estimated duration of the operation) in the bottle.

Place the hood over the patient's face, adjusting the amount of air in the cushion rim, so that it will fit *tightly* about the nose and mouth, with the air valve wide open.

Make a short, quick compression of the bulb with each expiration of the patient.

After the lapse of one minute (it is a great convenience to have some one at this stage hold a watch at hand, in order accurately to note the time), completely close the air valve.

After the lapse of two minutes more, make two short, quick compressions with each expiration.

At the end of from five to seven minutes from the beginning, the patient will be in a state of surgical anæsthesia.

There remains now only the necessity of close watch of the patient, to give, if there arise choking, coughing, or symptoms of cyanosis, a little additional air by opening the air valve as much or as little as the circumstances call for.

NOTE. Patients differ very much in the way they take ether by any method. The same danger exists here from carrying the anæsthesia too far, as in other methods, but it is easier to control with this apparatus.

DONT'S.

Don't attempt to etherize a patient with the stomach full.

Don't use old ether. (Ether which has stood in a warm place, in a loosely stopped bottle, deteriorates rapidly, and is totally unfit for anæsthetic purposes.)

Don't use anything but Squibb's 4 oz. cans of ether.

THIERSCH'S METHOD OF SKIN GRAFTING.

WITH REPORT OF A CASE.

Thiersch's method of skin grafting constitutes one of the most valuable improvements of modern surgery. It consists, in brief, of the transfer of large strips of thinly cut integument from one part of the body to another, from which the skin has been destroyed by accident or operation. The place of election for cutting the grafts, is the anterior surface of the thigh, for the reason that there is the

least growth of hair upon this part, and a long, broad surface is presented from which to cut the grafts.

Strict antiseptic measures are taken to make both areas aseptic, and lastly all traces of chemical antiseptics are washed away with a sterilized salt solution.

PREPARATION OF THE AREA TO BE GRAFTED.

If it be a recent wound, as that following the removal of a tumor, or where a large area of the skin is sacrificed for any cause, the only necessary conditions are that it shall be aseptic, and all hemorrhagic oozing stopped.

If it be an ulcerating surface, or a granulating area resulting from a burn, either the granulations must be scraped or cut away, or a course of cleansing resorted to with soap and water, bi-chloride solution 1:1000 with a dressing of Iodoform gauze saturated with balsam of Peru, until the surface is firm, level, and a healthy pink. This preparatory process may require ten days or two weeks. A few hours before operation, a gauze compress wet in a 1:3000 bi-chloride solution should be applied.

PREPARATION OF THE AREA FROM WHICH THE GRAFTS ARE TO BE TAKEN.

The day before the operation, the thigh must be shaved, scrubbed with soap and water, ether, and lastly 1:1000 bi-chloride solution. A bi-chloride gauze compress is then applied and bandaged firmly over the part, to remain until the hour for operation. After inducing anæsthesia, the area to be grafted is exposed, douched thoroughly with $\frac{6}{10}$ % sterilized salt (Na. Cl.) solution, and compresses of sterilized gauze, wet in the same salt solution, placed over it, while the grafts are being removed.

INSTRUMENTS.

Scissors, probe, curette and a sharp razor, or, better still, Mixer's skin grafting apparatus.* The latter is a sort of microtome arrangement by the aid of which the grafts can be cut much more accurately than through the most expert use of the razor. With this instrument the grafts are left lying upon their natural site. The instruments are all

* *Boston Medical and Surgical Journal*, October, 1892.

sterilized as preparatory to any operation, and lastly immersed in salt solution.

SOLUTIONS.

Two large pails of the salt solution must have been prepared beforehand, one hot the other cold. Basins of salt solution prepared from these pails at about the temperature of the human body are kept at hand for the operator to dip his hands in, wet gauze, sop wounded surfaces, etc.

DRESSINGS.

Cut strips of gutta percha tissue about one inch wide and long enough to reach across the wound. Let them soak in a 1:1000 bichloride solution over night and transfer them to salt solution one hour before operation.

Plenty of gauze cut into strips six inches wide and a yard long is prepared beforehand by sterilizing either with dry or steam heat.

OPERATION.

Anæsthetize the patient. Surround the field of operation with freshly sterilized towels. Cut or trim off smoothly all jagged edges of tissue, projecting granulations, or doubtful tissue of any sort.

Sop frequently with pledgets of gauze wet in salt solution.

Apply compress over all oozing points and exercise pressure until bleeding has ceased.

Expose the thigh from which the grafts are to be taken, adjust the Mixer machine, and with short, quick strokes of the knife cut the graft of even thickness and such length as the instrument will allow.

Have some pieces of tissue paper ready, which have been sterilized by dry heat (ordinary closet paper will answer).

Wet a sheet of the tissue paper in the salt solution and lay it over the graft. With the probe, lift one end of the graft, and with it the overlying tissue paper.

The tissue paper, graft and all, can then be easily lifted, and any turned over edges of the graft, or other disarrangement, adjusted with the probe.

The graft, still attached to the tissue paper, is transferred directly to the surface prepared for it, and again with the probe, one end is detached from the tissue paper, held to the surface where it is to remain, and the paper stripped off.

This simple expedient greatly facilitates the handling of the graft.

These steps are repeated until the whole area to be grafted has been covered.

Next, the strips of gutta-percha tissue are laid across the grafted area, slightly overlapping like clapboards.

A thick compress of gauze, wrung in the salt solution, is laid over the gutta-percha tissue, and over this a layer of absorbent cotton. Next apply a roller bandage snugly. The bandage and cotton should be removed at intervals of six hours, and the remainder of the dressing wet with salt solution. At intervals of two days the whole dressing should be changed, observing the same antiseptic precautions as in the operation.

Much care must be used in removing the gutta-percha tissue, not to disturb the grafts.

At the end of a week, if the operation and subsequent care have been properly conducted, the grafts will present a bluish pink color, and will be closely adherent.

At the end of ten days, all the overlapping edges of the grafts may be trimmed off and a boracic acid cerate applied.

Areas grafted by this method do not contract, but leave soft, pliable cicatrices. The cicatrices thus formed are likely to be tender and subject to injury on account of anæsthesia of the part.

APPLICATION.

This method finds a wide field of application.

1. The covering of large denuded areas resulting from burns.
2. The healing of chronic ulcers, — varicose, syphilitic, and lupoid.
3. The covering of large wounds following the removal of tumors and malignant growths.
4. Congenital malformations, as webbed fingers and others.

A CASE.

CICATRICAL CONTRACTION OF THE INDEX, MIDDLE, AND RING FINGERS, TREATED BY THE THIERSCH METHOD.

This case is of extreme interest, not only on account of the mode of treatment and results, but also because of the singular nature of the accident which made the operation necessary.

I herewith append a brief report of the thrilling experience of the patient in her escape from the fourth story of a burning building.

The following extracts from a New York paper, relating to the accident, afford the most authentic record of the early history of the case:—

"Screams of distress and cries for help were heard from the flame-licked building. . . .

"From the top floor Mr. F. was seen at the window, through the black cloud of smoke that enveloped him. Just below him were his nieces, with their bodies half out of the window, screaming for help and calling upon their uncle. One of the young girls seemed about to spring to the ground, but Dr. M. who was one of the first at the scene of the fire, called on her not to jump, and in a moment more Mr. F. threw a long rope from the window, which, while choking with the smoke, he had procured and made fast. Had it not been for this rope all three must have perished. Leaning from the window, Mr. F. called to the girls to descend. Miss R. H. was the first to venture upon the rope. She slid down rapidly, but her hands had already been badly burned, and the rope cut horrible gashes in her flesh. She gave way when some feet from the ground, let go, and probably would have been crushed, had not two men caught her in their arms. . . . A reporter called later in the day at the hospital to see the injured ones. . . . Miss R. H. was suffering very much from her injuries which may prove serious. Her face was badly burned, as well as her hands. Her hair was half burned from her head, and she was badly lacerated by her descent."

A BRIEF DESCRIPTION OF THE CASE FROM THE PEN OF THE PATIENT.

"Aug. 21, 1892, my hands were burned by contact with a very hot door-lock and petroleum flames. Five minutes later I came down four stories from a burning apartment by means of a rope suspended from a window one story higher than my own. My hands simply clasped the rope, and as it was very rough and I weighed 153 pounds, and have very thin skin, the palms of my hands and my fingers were entirely denuded of skin. Other parts of my body and face were superficially burned, but my hands were in such a condition that some of the doctors who first saw them did not know as they could be saved. The agony that I suffered with them for three weeks was intense. The nerves were exposed, and although the boracic acid ointment that was applied after the first week proved most healing, I felt much of the time as if the pangs of hell had verily 'got hold upon me,' and part of the time I was delirious with the horrible suffering.

"The first week my delirium was increased by the use of drugs. Chloral and morphine were given me in large quantities, but at the end of that time it was, fortunately for me, deemed best to withhold them entirely. The outside of my hands were terribly swollen. The palms healed rapidly, and at the end of a month my hands looked almost as well as ever. The doctors in charge of my case seemed entirely satisfied with the result of their work and I was left apparently cured. From then on a new trouble began, and developed rapidly. My fingers began to contract, and upon seeing the doctors again they said nothing more could be done until the fingers had finished contracting.

"They said that I must be patient and wait for the time to come when they could be operated upon.

"The following month was one of misery to me, to see my fingers, through sheer weakness, gradually contract until finally they rested upon the palms of my hands.

"It is now a month since the operation on the right hand and I am able to use that, as also the left hand, on which an operation was performed two weeks earlier, with great facility, writing as rapidly as formerly." Dec. 12, 1892.

The thumb and little finger only of each hand were free. The tips of the other fingers very nearly touched the palm of the hand, and were bound down by dense webs of cicatricial tissue.

The accompanying photograph, taken just prior to the operation, gives a very fair idea of the condition.



CICATRICIAL CONTRACTION OF FINGERS.

The left hand was operated upon first. The webs of cicatricial tissue were cut sufficiently to straighten the fingers, then all the dense, unyielding tissue was dissected away. After the oozing from the freshened surfaces had ceased, grafts were transferred from the anterior surface of the thigh, in the manner described above. All the grafts readily became adherent, and at the expiration of ten days, repair was complete without suppuration or inflammatory reaction of any degree. Twenty days after, the right hand was operated upon in a similar manner, with the same results. The accompanying illustration shows the state of the hands after complete healing had taken place.

It will be seen that the fingers are not perfectly straight, but yet can be opened widely enough to enable the patient to make use of the



RESULT FOLLOWING SKIN GRAFTING BY THE THIERSCH METHOD.

hands for all ordinary purposes. The muscles of the forearm were naturally very weak after three months of inactivity, hence the resumption of the finger movements must necessarily be acquired somewhat slowly. The result can be summed up in a very few words, viz.: The hands which were hopelessly crippled for all the necessary uses, such as attention to personal necessities, in adjustment of clothing, use of knife and fork, writing, to say nothing of the myriads of other hand and finger uses which one wishes to resort to daily, have been restored to practically perfect usefulness.

REMOVAL OF THE RIGHT SUPERIOR MAXILLA

FOR THE RELIEF OF A MAXILLARY TUMOR, FOLLOWED BY ADJUSTMENT OF A DENTURE WHICH RESTORED THE OUTLINE OF THE FACE AND PERFECT POWER OF ARTICULATION.

Mrs. R.'s condition on examination is best represented by the accompanying engraving. See p. 25, No. 1. The right side of the oral

cavity and face was filled with a tumor the size of a goose egg, which had caused absorption of a portion of the right superior maxillary bone, and resulted in great distortion of the mouth and right side of the face. All of the teeth had been lost, and the entire alveolar process of that side absorbed.

The tumor undoubtedly originated from the antrum. Its removal was effected by cutting through the median line of the upper lip and carrying the incision up along the right border of the nose to a little below the inner canthus, and then parallel with the lower lid to the prominence of the malar bone.

The flap thus outlined was dissected up and turned outward. The malar bone was then sawn through at its junction with the superior maxilla, and the tumor, with the orbital plate, removed. The flap was then replaced, its edges carefully sutured, and the cavity within the mouth packed with gauze.

The external wound healed kindly; and at the end of four weeks the ragged wound within the mouth had nicely smoothed over, leaving free communication between the nasal and oral cavities.

She was then recommended to the hands of Dr. J. E. Waitt for the adjustment of a denture. He has kindly submitted a report of his work on the case, which I herewith append.

In the recording of operations and appliances it is interesting to note the results attained by the use of mechanical appliances both for masticating and the restoration of the contour of the face, as well as speech, after such operations as was performed for Miss O., Oct. 10, 1891.

On April 9, 1892, there was inserted an appliance, comprising the upper and lower teeth, and held in place by spiral gold springs working freely on fixed buttons. To the upper plate was vulcanized a hollow rubber bulb conforming to the parts removed by the operation, and as far as possible reproducing the original outline of face and lip. With this appliance inserted the patient could talk and read distinctly, while without it not one word could be understood.

Sincerely yours,

J. E. WAITT.

The accompanying engraving represents very excellently the appearance of the patient at the present time. See next page, No. 2. Her powers of speech were exceedingly interfered with by the free communication between the cavity of the mouth and the nasal chambers, so much so that it was difficult for her to make herself understood. Her joy after the adjustment of the denture, at finding herself able to converse with perfect ease and clearness, knew no bounds.

No. 1.



RIGHT MAXILLARY SARCOMA.

No. 2.



AFTER REMOVAL OF TUMOR, CICATRIZATION, AND ADJUSTMENT OF DENTURE.

REPORT OF A FOURTH SERIES
OF
ABDOMINAL OPERATIONS.

FIRST SERIES,

REPORTED SEPTEMBER, 1888, COMPRISING FIFTY CASES.

SECOND SERIES,

REPORTED OCTOBER, 1889, COMPRISING SIXTY-TWO CASES.

THIRD SERIES,

REPORTED JANUARY, 1892, COMPRISING SIXTY-SEVEN CASES.

FOURTH (Present) SERIES,

COMPRISING TWENTY-FIVE CASES.

TOTAL, TWO HUNDRED AND FOUR CASES.

TABULAR VIEW.

I. OPERATIONS FOR THE REMOVAL OF OVARIAN AND PAROVARIAN TUMORS.

Number.	Patient of	Date of Operation.	Age.	Married or Single.	Number of Children.	Number of Tappings.	Time since first noticed.	Size and Nature of Tumor.	One or both Ovaries.	Adhesions.	Drainage.	Hospital or Private.	Result of Operation.	Remarks.	Reported elsewhere.
1	Dr. C. R. Rogers, Plymouth, Mass.	March 24, '92.	62	S.	0	0	17 yrs.	{ Double Multilocular Ovarian Tumors.	2	Yes.	Yes.	H.	D.	{ Recovery from operation rapid, soon followed by albumenuria, ascites, and death.	
2	Dr. G. B. Sawtelle, Malden, Mass.	May 13, '92.	34	M.	0	0	6 yrs.	{ Small Ovarian Cyst, L. Ovary.	2	Yes.	No.	P.	R.	{ Small Fibroid near right uterine cornu.	
3	Private.	June 9, '92.	42	M.	0	1	?	{ Simple Cyst of Left Ovary.	1	Yes.	No.	P.	R.	{ Uncomplicated convalescence.	
4	Dr. Chas. Leeds, Chelsea, Mass.	Nov. 3, '92.	39	M.	3	0	6 mos	{ Simple Cyst of Left Ovary.	1	No.	No.	P.	R.	{ Uninterrupted convalescence.	

II. OPERATIONS FOR THE REMOVAL OF OVARIES, NOT THE SEAT OF TUMOR.

Number.	Patient of	Date of Operation.	Age.	Married or Single.	Number of Children.	Duration of Disease.	Pathological Condition or Symptoms Necessitating Operation.	One or both Ovaries.	Adhesions.	Drainage.	Hospital or Private.	Result of Recovery or Death.	Effect of operation on condition requiring it.	Remarks.	Reported elsewhere.
1	Dr. Martha E. Mann, Boston, Mass.	Jan. 21, '92.	38	S.	0	2 yrs.	Uterine Fibroid.	2	Yes.	No.	H.	R.	Cure.	{ Excellent convalescence. Tumor already diminished $\frac{2}{3}$ in volume.	
2	Dr. J. F. Hadley, Waltham, Mass.	Feb. 18, '92.	40	M.	0	3 yrs.	Pyo Salpinx.	2	Yes.	Yes.	P	R.	Cure.	{ Excellent recovery from operation. Subsequent improvement in health.	
3	Dr. A. M. Chipman, Roxbury, Mass.	March 24, '92.	28	S.	0	10 yrs.	Double Pyo Salpinx.	2	Yes.	No.	H.	R.	Cure.	{ Full recovery to robust health.	
4	Dr. Chas. L. Nichols, Worcester, Mass.	Nov. 29, '92.	42	M.	1	7 yrs.	Uterine Fibroid.	2	No.	No.	P.	R.	Cure.	{ Removal of tumor impracticable. Ovaries and tubes extirpated.	

III. OPERATIONS FOR OTHER PURPOSES THAN THE REMOVAL OF OVARIES.

Number.	PATIENT OF	Date of Operation.	Sex.	Age.	Duration of Disease.	Pathological Condition or Symptoms necessitating Operation.	Nature of operation.	Drainage.	Hospital or Private.	Result (Recovery or Death).	Effect of Operation on Condition requiring it.	REMARKS.	Reported elsewhere.
FIBROID TUMORS OF UTERUS.													
1	Private.	May 6, '92.	F.	51	1 year.	{ Uterine fibroid and } { parovarian cyst. }	{ Supra vaginal hys- } { terectomy. }	{ Yes. }	P.	R.	Cure.	{ Convalescence uncomplicated. }	
2	{ Dr. E. P. Colby, } { Wakefield, Mass. }	{ Nov. 4, '92. }	F.	28	1 year.	{ Sub-peritoneal } { uterine fibroids. }	{ Removal of three } { pediculated fi- } { broids. }	{ No. }	P.	R.	Cure.	{ Operation effected without } { mutilation of genital or- } { gans. }	
3	{ Dr. I. T. Talbot, } { Boston, Mass. }	{ Nov. 15, '92. }	F.	64	15 mos.	{ Multiple uterine fi- } { broid. }	{ Supra vaginal hys- } { terectomy. }	{ No. }	P.	D.	.....	{ Death from peritonitis. } { Supposed cause, self-im- } { munction from fibroid in a } { state of putrefactive de- } { composition. }	
HERNIAS.													
4	Dr. D. S. Coles, } Wakefield, Mass.	Dec. 20, '92.	F.	82	3 days.	{ Strangulated ingui- } { nal hernia. }	Radical.	{ No. }	P.	R.	Cure.	{ Excellent progress toward } { recovery. }	
VAGINAL HYSTERECTOMY.													
5	{ Dr. W. J. Winn, } { Cambridgeport, Mass. }	{ Jan. 27, '92. }	F.	36	1 year.	{ Carcinoma of Uterus. }	{ Vaginal hysterec- } { tomy. }	{ No. }	H.	R.	Cure.	{ Uncomplicated convales- } { cence. }	
6	{ Dr. C. F. Sherman, } { Haverhill, Mass. }	{ May 20, '92. }	F.	46	1 year.	{ Epithelioma of Cer- } { vix. }	{ Vaginal hysterec- } { tomy. }	{ No. }	P.	D.	.....	{ Pelvic Peritonitis. }	
MISCELLANEOUS.													
7	{ Dr. Harriet H. Cobb, } { Cambridgeport, Mass. }	{ Jan. 18, '92. }	M.	11	7 days.	Appendicitis.	{ Removal of vermif- } { form appendix. }	{ Yes. }	P.	R.	Cure.	{ Rapid and uncomplicated } { recovery. }	
8	{ Dr. L. M. Kimball, } { Boston, Mass. }	{ Jan. 24, '92. }	M.	39	2 wks.	Appendicitis.	{ Removal of vermif- } { form appendix. }	{ Yes. }	P.	R.	Cure.	{ Calculus size of garden bean } { Rapid convalescence. }	
9	{ Dr. F. B. Percy, } { Brookline, Mass. }	{ Jan. 28, '92. }	F.	24	6 mos.	Pelvic abscess.	{ Evacuation of ab- } { cess cavity. }	{ Yes. }	H.	R.	{ Rapid con- } { valescence } { with recur- } { rence. }	.....

10	{ Dr. S. H. Bodge, Jr., Cambridge, Mass. }	{ April 24, '92. F. 8 13 days. }	Appendicitis.	{ Evacuation of pus, and removal of stump of appendix. }	Yes.	P.	R.	Cure.	{ Slow, but complete recovery. }
11	{ Dr. A. B. Sherburne, Portsmouth, N. H. }	{ April 28, '92. F. 20 4 mos. }	Tubal pregnancy.	{ Removal of mem- branes. }	Yes.	P.	R.	Cure.	Rapid recovery.
12	{ Dr. Walter Wesselhoft, Cambridge, Mass. }	{ May 24, '92. F. 65 1 wk. }	{ Cholelithiasis with dropsy of gall blad- der. }	Cholecystotomy.	Yes.	P.	D.	.....	{ Autopsy showed gangrene of walls of gall bladder and enormous edulis wedged in cystic duct. }
13	{ Dr. J. F. Hadley, Waltham, Mass. }	{ June 25, '92. M. 10 11 days. }	Appendicitis.	{ Removal of vermi- form appendix. }	Yes.	P.	R.	Cure.	Rapid convalescence.
14	{ Dr. F. A. Gardner, Salem, Mass. }	{ Oct. 26, '92. M. 32 9 days. }	Appendicitis.	{ Removal of vermi- form appendix. }	Yes.	P.	D.	.....	{ Four calculi. Uninterrupted convalescence for five days, with temp. and pulse normal. Sudden collapse and death. Autopsy showed no cause. Sup- posed to be embolism. }
15	{ Dr. C. Wesselhoft, Boston, Mass. }	{ Dec. 15, '92. F. 32 1 year. }	Colloid uterine tumor.	Removal of tumor.	No.	P.	R.	Cure.	{ Uncomplicated convales- cence. }

EXPLORATORY INCISIONS.

16	{ Dr. C. S. Rounsaval, Nashua, N. H. }	{ Nov. 1, '92. F. 44 8 mos. }	Ovarian carcinoma.	Exploratory.	No.	P.	R.	.....	{ Recovery from exploratory incision. No hope of re- covery from disease. }
17	Private.	{ Dec. 27, '92. F. 35 2 years. }	{ Continued severe pain with enlarge- ment simulating tumor. }	Exploratory.	No.	P.	R.	.....	{ Nothing found to account for the pain. Liver ap- peared slightly enlarged, but otherwise normal. }

ABDOMINAL SURGERY.

GENERAL REMARKS.

During the past year the scope of abdominal surgery has not materially broadened.

The following are a few of the principles governing abdominal surgery, which, if anything, have become more firmly established by recent experience.

Ovarian tumors should be removed at the earliest possible period in their development.

Fibroid tumors, which by their size, accompanying hemorrhage, or septic retrograde metamorphosis, are a menace to the patient's life, should be operated upon either by total extirpation or removal of the ovaries and tubes to stop their growth and induce atrophy.

Obscure cases of abdominal disease, whether in the nature of intestinal obstruction, obscure tumors, or inflammatory affections, as appendicitis, should be treated by exploratory incision *before* the patient has reached the stage when life is seriously menaced.

Cases of chronic pyo salpinx, when, as a result of previous acute suppurative inflammation the uterine appendages have become imbedded in a mass of cicatricial adhesions, are well-treated by abdominal section and removal of the same if a chronic state of invalidism results therefrom.

The rather indiscriminate removal of the ovaries and tubes with no better indication therefor than neurotic conditions, such as dysmenorrhœa, ovarian neuralgia, epilepsy, or nymphomania, are condemned by the best authorities. A recent editorial in a prominent medical journal, entitled "The Dream of the Ovary,"* closes remarks upon this subject with the following words: "Let us hope, then, that the ovary shall, hereafter, peacefully wrap the drapery of the broad ligament about her, and lie down to pleasant dreams of families yet to come," to which I can but say, "Amen!"

My personal experience in the field of abdominal surgery during the past twelve months has been, in the main, similar to that of previous

* The Medical Record.

years. There is, however, much fascination in this field from the variety of conditions constantly met.

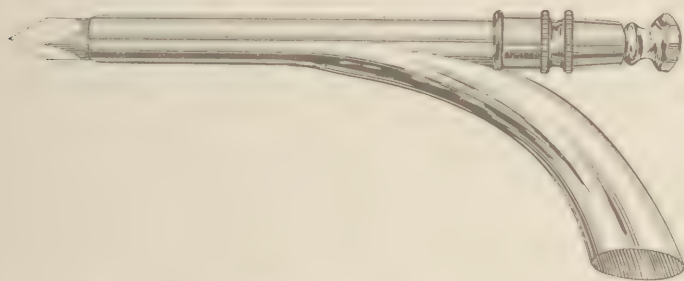
I shall, in the following pages, briefly note a few of the cases which have presented unique, or rare features.

AN IMPROVED ABDOMINAL TROCAR.

It has long been my desire to find some form of trocar, for the evacuation of abdominal cysts, which might do away with the necessity of using the rubber tubing, such as is commonly employed with the Spencer Wells instrument.

The pistol shaped trocar of Tait has always seemed a very desirable instrument to me, except that its point is such that it does not easily penetrate a cyst wall.

The accompanying cut represents a modification of the Wells' instrument, which I have devised.



The modification consists in cutting off the handle and substituting in its place a hollow pistol grip through which the fluid is conducted, and can easily be caught in a basin or bucket held by an assistant.

TWO CASES OF LARGE UTERINE FIBROID TREATED BY ABDOMINAL SECTION AND REMOVAL OF THE OVARIES AND TUBES.

Case I. Miss S., age 38, had been under my observation and treatment for two years, for a large multiple fibroid tumor of the uterus.

I had hoped to be able to tide her through to the climacteric without operation, but frequently recurring severe hemorrhages, with gradually increasing size of the tumor, finally led me to attempt operation. Previous examination of the case led me to believe its relations with

the uterus were such that a supra-vaginal hysterectomy could not successfully be performed.

On making an exploratory incision I found this to be true, and did nothing but effect a removal of the tubes and ovaries. The wound healed promptly, the patient has never menstruated since; the tumor has diminished at least two thirds in volume, and has ceased to be any annoyance. It is now about one year since the operation was performed, with the result that the patient is restored to practically perfect health.

Case 2. Mrs. T., age 42. As in the preceding case I deferred operation for two years, hoping to relieve the patient with treatment, and looking to the climacteric to finally effect a cure.

This case, also, I judged from examination, was not favorable for supra-vaginal hysterectomy.

I also here made extirpation of the ovaries and tubes.

Though but a few weeks have now elapsed since the operation, the patient has recovered and returned to her home, and there has already been such rapid atrophy of the tumor, with such marked diminution in the size of the abdomen, as compared with it immediately previous to the operation, that the patient, not having been told to the contrary, has no suspicion but that the tumor has been removed.

GENERAL REMARKS RELATING TO REMOVAL OF THE OVARIES AND TUBES FOR THE CURE OF UTERINE FIBROID (BATTEY'S OPERATION).

It is well known that very many fibroid tumors are so related in their development to the womb tissue that they cannot be removed without great danger to the patient's life. Those which permit of successful removal are as follows:—

1. Sub-mucous fibroids which present at the os and are thus accessible for removal with the spoon saw.
2. Sub-peritoneal fibroids, which in their development have left the body of the womb, but are still attached to it by a comparatively small pedicle consisting of blood-vessels, connective tissue, and peritoneum.
3. Interstitial single or multiple uterine fibroids, which in their growth have elongated the cervix in such way that it becomes a pedicle to the mass.

There are, however, many fibroids which cannot be classed with the above, and which must be treated, if at all surgically, in some other way.

I have had no personal experience with the use of electricity in

such cases, and reports from other sources are conflicting. I can only gather regarding the use of this agent that flooding can with considerable certainty be checked by it, but that reduction in the size of the tumor seldom follows.

The most reliable figures which I can quote relating to the effect of removal of the ovaries and tubes are from the pen of Lawson Tait.*

He reports 271 cases of removal of the uterine appendages for myoma, with a mortality of 6 cases, or $2\frac{2}{10}\%$. Eight cases of the remaining 265 he reports as unsatisfactory, in that the tumor continued to grow, or that the patients died from some complication attributable to the tumor.

"This leaves two hundred and fifty-seven out of a total of two hundred and sixty-five cases in which complete cures have been effected; that is to say, in which the symptoms have been satisfactorily relieved, — where the tumor has either entirely disappeared or so diminished, or been so satisfactorily arrested, as to be no longer a source of anxiety or trouble, and when the main feature of the disease, exaggerated menstruation, has been completely and permanently arrested."

From the experience of this eminent surgeon, coupled with my own limited experience, I am led to believe that, in removal of the uterine appendages, we possess a most valuable means for arresting the growth of otherwise inoperable cases of uterine fibroids, with reasonable certainty of atrophy, partial or complete, with relief of depleting hemorrhages and other threatening symptoms.

CASES OF APPENDICITIS.

Inflammations of the vermiform appendix are so frequent, the symptoms and pathology now so well understood, and reports of cases with exhaustive articles upon the subject have so frequently appeared in medical literature, during the past year, that any general remarks upon the subject in this report would seem superfluous. Our present rational comprehension of the pathology of this disease, with the rational surgical treatment now in vogue, is one of the crowning glories of modern surgery. I fear, however, that there is a growing tendency to run to extremes in the operative treatment of this structure. Already there is a race for statistics, and it is presumable that some surgeon will, ere long, flaunt before the medical world his series of one thousand cases of removal of the appendix.

* *Medical Record*, May 2, 1891.

Already we hear sibilant sounds which insinuate that the time is not far distant when the removal of the appendix from the infant will follow the severing of the umbilical cord and circumcision, with as little concern as the two last mentioned procedures are now practised.

The following constitutes a brief condensation of our present knowledge of the pathology and treatment of appendicitis.

1. All cases of Typhlitis, Peri-Typhlitis, Typhlo-Enteritis, Cæcitis, are inflammations which have their origin in the appendix vermiformis.

2. All cases of peritonitis in the male, unless from some other distinctly recognized cause, probably originate from an inflamed appendix.

The pain incident to an appendicitis is not always limited to the right inguinal region.

3. The appendix is not constant in its location, having at times been found far removed from its usual site, even to the left of the median line.

4. In the female a peritonitis may take its origin from the appendix, but is much more likely to emanate from the vaginal tract by the way of the Fallopian tubes.

5. Many cases of appendicitis are very slight in character, there being little more than a transitory sensitiveness in the right inguinal region for a few days.

6. In many cases there is recurrence of the attack after the lapse of a few weeks or months.

7. Still other cases, in the first attack, rapidly go on from bad to worse, and in spite of all medicinal or local treatment, the patient dies within ten days.

8. Still others rapidly form a circumscribed tumor at the site of the appendix, with the accumulation of pus, which is excluded from the general peritoneal cavity by protective adhesions between adjacent loops of intestines.

This form may go on two, three, and even four weeks with ultimate recovery through absorption, rupture into an adjacent loop of intestine, and evacuation of the pus per rectum, or a final burrowing of the pus toward the surface, with pointing and rupture in the groin above Poupart's ligament.

WHEN SHOULD SURGERY BE RESORTED TO?

1. In all cases in which there is a rapid sequence of alarming symptoms during the first few days, *e. g.*: increasing tenderness and

tympany of the abdomen, and elevation of temperature which quickly creeps up to 101° and 102° F.

2. In all cases where a distinct tumor is discernible in the right groin at the site of the appendix.

3. In those cases of recurrent appendicitis which are, with each return, a menace to the patient's life, and are, as well, a serious interruption to his occupation.

From the cases which have come under my observation during the past year, a few conditions have been met with worthy of record.

In case No. 9, of the table, a sloughing appendix was removed, together with a calculus as large as a garden bean.

Case No. 12 yielded, beside a sloughing appendix, four calculi, each about the size of a marrowfat pea. This case terminated fatally, not, however, through any fault of the attending physician in neglecting to summon counsel early in the case, but rather from the obstinacy of the patient in yielding to his professional advisors. The operation was performed upon the ninth day, one week after operation was first advised. There seemed then very excellent prospects for recovery.

Two days after the operation, the following letter was received:—

OCTOBER 28, 1892.

Dear Doctor,—I have just come from Mr. U.'s house, where I found him in excellent condition. His temperature this A. M. is 98.9° , and his pulse 98, and of good character. He slept well last night and takes his nourishment regularly. When I irrigated the wound yesterday morning, I got a little pus, but since then there has been almost none.

There has been almost no hemorrhage from the first. The patient seems bright, and very much encouraged, and Dr. K. and relatives, are correspondingly well pleased.

Your star is in the zenith in S.

Will report again later.

Wednesday night	Temp., $102\frac{3}{8}$	Pulse, 112
Thursday morning	" $99\frac{3}{8}$	" 100
" night	" $99\frac{2}{8}$	" 94
Friday morning	" $98\frac{9}{10}$	" 98

Yours very truly,

Three days later the patient was dead. Death occurred very suddenly and without any apparent cause.

Autopsy showed no satisfactory cause of death.

I shall never be able to erase from my mind the impression that an earlier operation would have saved his life.

AUTHOR'S TABLE OF CASES OF APPENDICITIS.

Number.	Patient of	Date.	Sex.	Age.	Duration of Attack.	Recurrent Attacks.	Calculi.	Appendix Removed.	Symptoms.	Treatment.	Result.	Remarks.
1	Hospital.	-	M.	53	9 days.	No.	No.	No.	Hard tumor in R. ing. region; tenderness on pressure. No general peritonitis. Temp. 101.5 F.	Operation and drainage.	Cure.	Evacuation of fec-tid pus.
2	Dr. S. Calderwood, Roxbury, Mass.	Feb. 12, '90.	M.	11.	1 wk.	No.	Yes.	Yes.	Severe pain in R. ing. region; distinct tumor in same region; distention of abdomen; diarrhea and vomiting. Tumor easily felt by rectal touch. Temp. 102 F.	Operation and drainage.	Cure.	Evacuation of fec-tid pus.
3	Dr. F. C. Richardson, E. Boston, Mass.	March 12, '90.	M.	25	3 days.	One.	Yes.	No.	Attack ushered in by chill, pain, and tenderness in r. iliac region, later fever; evidence of general peritonitis on third day.	Operation and drainage.	Died.	Evacuation of fec-tid pus.
4	Dr. J. N. Knight, Cliftondale, Mass.	Nov. 18, '90.	F.	39	-	Several.	No.	Yes.	Swelling in R. ing. region; pain extending down the right leg to heel. Latter a constant symptom in each recurrent attack.	Operation and drainage.	Cure.	Evacuation of fec-tid pus.
5	Dr. C. F. Osman, Dorchester, Mass.	Jan. 29, '91.	M.	38	10 days.	No.	Yes.	Yes.	Distinct tumor in r. iliac fossa; vomiting, diarrhea, perspiration. Temp. 102 F.	Operation and drainage.	Cure.	Calculus size and shaped dated; evacuation of fec-tid pus.
6	Dr. F. L. Newton, Somerville, Mass.	Feb. 23, '91.	M.	37	3 wks.	Two.	No.	Yes.	Had passed acute stage. Dense tumor still in R. inguinal region; not very sensitive on pressure. Appendix perforated.	Operation and drainage.	Cure.	Inflammatory deposit undergoing absorption.
7	Dr. F. L. Newton, Somerville, Mass.	Feb. 26, '91.	M.	-	10 days.	No.	Yes.	Yes.	Abdomen tympanic; tumor in r. inguinal region; diarrhea, vomiting. Temp. 102 F.	Operation and drainage.	Died.	Operation too long delayed. Death from septicæmia; evacuation of fec-tid pus.
8	Dr. H. H. Cobb, Cambridgeport, Mass.	Jan. 18, '92.	M.	11	7 days.	No.	No.	Yes.	Presence of tumor easily detected after etherization. Temp. 102 F.	Operation and drainage.	Cure.	Much sinking pus evacuated.
9	Dr. L. M. Kimball, Boston, Mass.	Jan. 24, '92.	M.	39	2 wks.	No.	Yes.	Yes.	Tumor in R. inguinal region, painful on pressure, but not extensively so. Highest temp. 102.5 F.	Operation and drainage.	Cure.	Calculus size and shape of garden bean, evacuation of fec-tid pus.

10	Dr. S. H. Blodgett, Cambridge, Mass.	{ April 24, '92. F. }	8 13 days.	Yes.	No.	Yes.	{ General tympanitis; tenderness } { over whole abdomen. }	{ Operation and } { drainage. }	Cure.	{ Very unpromising } { case at time of } { operation. Recov- } { ery slow. Evacua- } { tion of fecid pus. }
11	Dr. J. F. Hadley, Waltham, Mass.	{ June 25, '92. M. }	16 11 days.	No.	No.	Yes.	{ Appendix removed; painful tumor } { in R. inguinal extending into R. } { lumbar region. }	{ Operation and } { drainage. }	Cure.	{ Much fecid pus } { evacuated. }
12	Dr. F. A. Gardner, Salem, Mass.	{ Oct. 26, '92. M. }	32 9 days.	No.	Four.	Yes.	{ Painful tumor in R. inguinal re- } { gion. Four calculi removed. }	{ Operation and } { drainage. }	Died.	{ Evacuation of fec- } { tid pus. Uninter- } { rupted convales- } { cence for 5 days, } { with temp. and } { pulse normal. } { Sudden collapse } { and death. Au- } { topsy showed no } { cause. Supposed } { to be embolism. }

ECTOPIC PREGNANCY: ITS PATHOLOGY AND TREATMENT.

WITH A REPORT OF SEVEN CASES.

The old pathology of ectopic pregnancy divided it into tubo-uterine, tubal, abdominal, and ovarian. With our present knowledge of this interesting condition, the abdominal and ovarian varieties are discarded.

There is no evidence obtainable in all the literature on extra-uterine pregnancy to go to show that ovarian pregnancy ever occurs. It is now also pretty conclusively known that what has been termed abdominal pregnancy is nothing more nor less than the result of a ruptured tubal pregnancy.

Without question the cavity of the uterus is the normal site for the development of the ovum, but why, occasionally, it becomes impregnated somewhere in the course of the Fallopian tube and there undergoes development for a longer or shorter period, no one can positively say.

Theoretically it is supposed that the cilia, lining the Fallopian tube, are continually in motion, sweeping toward the uterus, and that this action in the normal state conveys the ovum to the uterine cavity, and prevents the passage, from the uterine cavity to the pelvic, of the spermatozoa, as well as the products of disease which may be going on within the uterus.

It is, however, well known that such a disease as gonorrhœa does progress by extension through the Fallopian tube to the pelvic cavity, destroying the ciliated epithelium as it goes.

The same destructive process may result from mild forms of catarrhal diseases of the genital tract.

With this condition present, or with a portion of the epithelium near the uterine attachment of the tube destroyed, the ovum may be brought to a standstill in the middle of the tube.

The spermatozoa by their own vibratory action are now able to make their way along the tube, not meeting with resistance from the cilia, and so reach the ovum and impregnate it.

Here development goes on until rupture of the tube takes place.

From this point on, the classification is a simple one, viz. :—

First. Rupture of the tube through its upper segment, with the escape of the products of conception into the abdominal cavity.

Second. Rupture of the tube through its lower segment and the escape of the products of conception into the folds of the broad ligament.

This time, in the history of a case of ectopic pregnancy, is the critical one, for hemorrhage usually accompanies the rupture. If the rupture occur into the abdominal cavity, the blood accumulates among the coils of intestines, and unless there be spontaneous cessation of the hemorrhage, or relief through prompt surgical measures, the patient dies. With the escape of the fetus into the folds of the broad ligament, there is likely also to be hemorrhage, which is thus outside the peritoneal cavity. It goes on dissecting up the pelvic peritoneum and accumulating until the resistance of the surrounding tissues is equal to the force of the escaping blood from the ruptured vessels, with cessation of the hemorrhage. This forms the well known pelvic hamatocele. Such a hamatocele usually undergoes spontaneous absorption with the recovery of the patient. In both conditions the fetus dies. Occasionally rupture into the folds of the broad ligament is unaccompanied by hemorrhage, the fetus lives in its new location and development progresses, sometimes to full term. The rupture of the tube takes place between the fourth and twelfth weeks of pregnancy. The early weeks are not marked by symptoms different from a normal pregnancy.

SYMPTOMS.

An otherwise normal pregnancy is interrupted somewhere between the fourth and twelfth weeks by an agonizing pain in one or the other ovarian region, probably accompanied by faintness and great prostration. This may be repeated at intervals of days or weeks, or there may be immediate sinking, and in a few hours death. There may be after a time a severe shock of pain, followed by gradual recuperation, and the patient be able to get about upon her feet again. Later, at the third or fourth month, there is a gradually increasing sense of tension and pain in one side or the other, with the formation of a distinct tumor and an anxious appearance of suffering in the countenance. Examination will show the uterus pushed to one side, somewhat enlarged, and auscultation may detect distinct placental souffle, if it happen to be located toward the anterior abdominal wall. There is likely to have been a recurrence of menstrual discharge of a dark color and shreddy consistence, supposed to be cast-off decidua membrane.

TREATMENT.

The appropriate treatment for a case of tubal pregnancy must depend upon circumstances. The choice lies between laparotomy and electricity.

There are conditions liable to arise which call as emphatically for prompt operative measures, as would be the case in strangulated hernia. On the other hand, conditions may be present, in which the subjection of a woman to the dangers of laparotomy might be a debatable question.

I presented a review of the literature on tubal pregnancy, in my last annual report, from which the following deductions were made:—

First. If diagnosis of tubal pregnancy have been made prior to rupture, laparotomy. There would be no more risk in this operation, than the removal of a simple uncomplicated ovarian cyst.

Second. If rupture have occurred intra-peritoneally, prompt laparotomy is the only recourse.

Third. After rupture has occurred into the broad ligament, and prior to four months, electricity.

Fourth. After four months' development of an intra-ligamentous gestation, course open to question; but probably destruction of the fœtus with electricity, with laparotomy held in reserve for the removal of the dead fœtus at such time as its presence shall prove a menace to the mother's life, will be the conservative course of the future.

The following cases have come under my care during the past year:—

Mrs. C., age, 26. First pregnancy. In April, 1892, I was summoned to Portsmouth, N. H. Being out of town at the time, I was unable to respond. A week later I addressed a letter of inquiry to the physician, and he told me in answer that he thought he had a case of tubal pregnancy, but that since writing me, the patient had presented such incongruous symptoms and had lapsed into such a deplorable state, that it was just as well that I did not come. He thought the case was hopeless.

About a week later he again wrote me that his patient was still alive and showing considerable vitality and recuperative force, and invited me to visit her in consultation. I did so and secured the following history:—

Her last regular menstrual period was in December, 1891. The following month (Jan.) she had a slight flow; in February none; in March, again a slight flow. Nine weeks prior to my visit she had an

attack of severe pain extending over the lower part of the abdomen, and lasting for an hour. One week later she had a similar attack, in two weeks still another, and then after an interval of two weeks another, the last, which was accompanied by faintness, continued prostration and exsanguination.

There had been no fainting in the previous attacks. At the inception of each attack she had slight, transitory nausea, and with each the pain was so severe that she would throw herself upon her face violently to the floor.

Upon examination, I found indistinct masses in each ovarian region, with tenderness over the whole lower part of abdomen.

The patient was suffering moderate, continuous pain, at the time of my visit, was pale and emaciated, and showed evidence of much suffering.

I did not venture a diagnosis, but advised an operation for the purpose of discovering the true state of matters, and giving relief, if possible. As soon as adequate preparations could be made, laparotomy was performed, which disclosed the lower part of the peritoneal cavity filled with clots, and a ruptured right tubal pregnancy.

I cleared the abdomen of clots, ligated the broad ligament, and cut away the gestation sac and ovary.

The progress of the case is indicated by the two letters which I afterward received from her physician, and which I herewith quote.

PORTSMOUTH, N. H., May 1, 1892.

My Dear Doctor, — I drop you a line to let you know how our patient is getting on. 102 has been the highest temperature, — the day after the operation. To-day it has been normal. The pulse ran to 146 at one time, due to persistent vomiting; to-day, it is 90.

I removed one of the drainage tubes yesterday, and think I shall the other to-morrow.

Everything looks promising, though she has not taken a mouthful of nourishment yet, owing to more or less continuous nausea. That, however, is subsiding, and I think we shall have a chance to use the abdominal supporter you spoke of, at least I hope so most sincerely.

Very truly yours,

A. B. SHERBURNE, M.D.

PORTSMOUTH, May 11, 1892.

My Dear Doctor, — Our patient is getting on finely, no setbacks as yet. Considerable discharge from the openings left after the removal of drainage tubes, but suffers no special pain. Appetite is fair, and she eats most anything.

Very truly yours,

A. B. SHERBURNE.

MRS. J. Last menstrual period, December, 1891. Some pain in left ovarian region, Feb. 4, 1892. Discharge of dark, shreddy material, Feb. 6, 7, and 8, flow continuing moderate in amount to the date of my visit, Feb. 22. She had irregular recurrence of pain, always in the left side.

Examination under ether showed the uterus displaced wholly to the right of the median line. A tumor was easily felt in the left ovarian region, fully the size of a goose egg, and distinct from the uterus. Pulsating vessels could be distinctly felt. The breasts contained a few drops of milky fluid.

On consultation with Drs. W. Wesselhoeft and F. B. Percy, a diagnosis of tubal pregnancy was made, with rupture into the broad ligament. It was decided to attempt the destruction of the foetus by the use of electricity.

Drs. W. L. Jackson and A. J. Baker-Flint were called in as experts to conduct the electrical treatment.

I herewith append Dr. Jackson's report of his relation to the case as electrical consultant: —

DR. W. L. JACKSON'S REPORT OF ELECTRICAL TREATMENT AND ITS RESULTS IN MRS. ———'S CASE.

On the afternoon of Feb. 22, 1892, I met in consultation Drs. Packard, F. B. Percy, and Baker-Flint. A diagnosis of extra-uterine pregnancy had already been made, and my opinion was requested in regard to the advisability of using electricity for the destruction of the life of the foetus. Examination revealed the following conditions: a firm, hard tumor, the size of a goose egg, on the left of the uterus, tender to touch; uterus displaced to the right; moderate discharge of reddish-brown fluid from the vagina.

Advised use of galvanic current, and applied it as follows: Negative electrode, insulated except at ball-shaped end, $\frac{3}{4}$ inch in diameter, covered with wash-leather, was applied to the tumor in the vagina. Positive, a Martin's abdominal membrane electrode, was applied to the abdomen. A 24-cell Waite and Bartlett zinc-carbon battery was used, a Gaiffe galvanometer and Vetter rheostat. Current gradually increased to 40 m. a. ten minutes, then gradually diminished. No pain.

Feb. 23. Patient passed a restless night, due chiefly to an irritating cough; apprehensive and nervous, otherwise condition unchanged.

Feb. 24. Electricity again applied in the afternoon, as before, except that clay electrode was substituted for the Martin's; 75 m. a. ten minutes. Some pain; slight flow continues.

Feb. 25. More comfortable night; vaginal examination shows diminution and softening of tumor.

Feb. 26. Electricity applied, 70 m. a. ten minutes. Pain more marked. After this

application a superficial abrasion of the vaginal mucous membrane was discovered at the point where the electrode had been applied.

Gradual improvement followed. Left side less sensitive, decreased apprehensiveness, better sleep, improved appetite.

March 6. Vaginal examination shows further decrease in size of tumor. Still slight flow but markedly diminished.

For two weeks after entrance to hospital, patient was kept in bed. March 5, was allowed to lie on sofa. March 9, sat up in a chair. March 13 (three weeks), walked about the room.

Feb. 21, temperature was 100.4° . Same the following morning; in afternoon, after the treatment, it rose to 101.6° . Feb. 23, morning, 99.4° ; afternoon, 101° . Feb. 24, morning, 100° ; afternoon, 101.6° , after electrical treatment. Feb. 25, morning, 100° ; afternoon, 102.6° , the highest temperature seen. Feb. 26, 100.6° . Feb. 27, 99.2° . From this time it fluctuated between normal and 99° , until March 5, after which it was normal.

General health improved steadily but slowly after leaving the hospital. For about two months there was tenderness in the region of the tumor. Function of bladder, normal, but marked sluggishness of bowels was very persistent. After the second month of her convalescence she could walk without difficulty and felt no inconvenience from movements involving the abdominal and lumbar muscles, such as rowing, etc.

In October, after a cold, there was increased sensitiveness and some enlargement of the tumor in the direction of the uterus, consisting of a flat tense swelling. The lump became as large as a hen's egg and sensitive to touch. Relieved by positive galvanism 20 m. a., to seat of trouble.

Although there are records as far back as 1853 of the use of electricity to destroy the fetus in extra-uterine pregnancy, still no advance in this line was made until 1878, when Dr. T. Gaillard Thomas revived its use, and established the confidence of the profession in it. It is noteworthy that the development of this method of treatment has been almost wholly limited to this country, and while nearly all books on electro-therapeutics by American authors contain some description of it, and are warm advocates of it, I have found only one reference to the subject in the standard works on electricity published abroad. Since 1878 there have accumulated records of nearly 100 cases, and careful search among these fails to reveal a case where death could be justly attributed to the action of this agent as applied, by what is now considered the best method. Cases proving fatal as a consequence of electro-puncture should not be charged to electricity. About half the recorded cases have been treated by the faradic current, with apparently the same results as those in which the galvanic current was used.

Faradism found more favor among the earlier operators, but the opinion of recent writers tends to the employment of the galvanic current. Those who have had the largest experience and best results prefer galvanism.

The reasons for the selection of galvanism in preference to faradism are as follows: —

1. The feticidal power of the faradic current is not as great as that of the galvanic. Some interesting experiments by Martin on eggs treated first by electricity, and afterwards placed in an incubator, gave some astonishing results. Whereas a constant current of only twenty m. a. was sufficient to destroy the germinating power in

every egg treated, an interrupted current, of such strength that it could be tolerated only by an etherized patient, prevented but forty per cent of the eggs from hatching. It may fairly be urged that these experiments with eggs are not closely analogous to the conditions found in extra-uterine pregnancy, still they verify our expectations, for it is well-known that a very powerful faradic current is required to kill a young animal, and it is difficult, in the condition which we have to meet, to so apply the current as to concentrate the effect at the vulnerable spot.

2. One effect of the faradic current is to produce powerful contractions of the muscles, and on account of the thin envelope enclosing the fetus, any sudden contraction of the surrounding muscular fibres and of the abdominal muscles might cause a rupture of the sac.

3. The galvanic current aids the absorption of the tumor.

4. Galvanism is less painful. (Electro-puncture should be avoided, as it is unnecessary and dangerous.)

On account of the danger of rupture of the sac, which most frequently occurs after the fourth month, it is obviously necessary to begin the treatment as soon as a diagnosis is made or even if the condition be but suspected, for in cases of mistaken diagnosis, it has been proved that this method may be safely employed, even if normal pregnancy exist. Most authorities advise against the use of electricity after the fourth month, when laparotomy should no longer be delayed, and yet if for any reason laparotomy is unadvisable, electricity can be depended on to destroy the fetus.

Reference to the records of cases of this nature leads us to the adoption of the following method: As soon as the condition is discovered, the patient should be put to bed, preferably in a hospital where surgical aid can be obtained in case of emergency. She should remain in a recumbent position throughout the treatment and for at least a fortnight after its termination. If there has been a rupture of the sac, no application should be made until the inflammation subsides. As the treatment is comparatively painless, no anæsthetic is required. The negative pole should be the one used internally, because its action is more destructive. The poles should be so applied that they will be as near the fetus as possible, and this should lie in the direct path of the current, whose direction may be either from the vagina through to the abdomen or from the vagina to the rectum. The negative pole should be covered with absorbent cotton and gently applied to the most prominent part of the tumor. The positive pole, of large area, to the abdomen. The current should be carefully regulated, and should be gradually increased, but need not exceed 75 m. a. It would seem better to use a current of about 40 m. a. the first day, and increase its strength at later applications. The evidence that our treatment has been successful, and that the fetus is dead, is the diminution in size and the softening of the tumor. Should any fever or other unfavorable symptom develop, it need not necessarily be considered alarming.

Should the constant current prove ineffectual, recourse may be had to voltaic alternatives. But this method should only be used by one perfectly familiar with the effects liable to be produced by it.

Number.	PATIENT OF	Date.	Age.	Previous preg- nancies.	Time elapsed since last men- strual period.	Rupture.	Location.	Symptoms.	Treatment.	Result.	Remarks.
1	Private.	July, '87.	39	0	2 mos.	Broad ligament.	Left.	{ Irregular show, pain in left ovarian region; sud- den sharp pain and fainting. Tumor in left ovarian region.	{ Sac punctured with aspirator needle, with subsequent hæmatocele.	{ Absorption of hæmato- cele, and mummifica- tion of fe- tus. A small tumor still remained.	.....
2	{ Dr. G. E. McCarthy, Ipswich, Mass. }	Mar. 20, '89.	30	0	.....	Broad ligament.	Left.	{ Wholly objective at time seen. Tumor in left ovarian region size of orange. Tubal preg- nancy not suspected.	{ Abdominal section and removal of gestation sac.	Recovery.	{ Fetus dead and mummified. Had ruptured into broad ligament, with formation of hæmatocele.
3	{ Dr. J. T. Harris, Roxbury, Mass. }	April 20, '89.	39	3	5 mos.	Broad ligament.	Left.	{ Much sharp pain in left side of abdomen. Uterus displaced. Next month severe pain recurred, with profuse bloody dis- charge lasting several days. Later, steadily increasing pain, cramp- like in character.	{ Laparotomy had been performed by another, and case abandoned. Vag- inal incision to evacuate decom- posing fetus.	Death.	{ Case in advanced state of septicæ- mia.
4	{ Dr. Chas. A. Gale, Rutland, Vt. }	Nov. 7, '90.	24	0	7 wks.	Intra-peritoneal.	Right.	{ Watery discharge tinged with blood; sudden ter- rific pain, faintness, and cold sweat.	{ Laparotomy with removal of gesta- tion sac and clots.	Recovery.	.....
5	{ Dr. Jos. P. Paine, Roxbury, Mass. }	Jan. 12, '91.	32	3	5 mo s.	Broad ligament.	Right.	{ Irregular bloody dis- charge, pain and aching through hips and back. Sudden sharp pain in right side, and fainting. Distinct fetal move- ments felt. Tumor filled whole of right inguinal region. Placental souf- fle over anterior surface. Uterus pushed well to the left side.	Abdominal section.	{ Death from hemorrhage	{ Placenta covered whole anterior surface of gesta- tion sac. One edge wounded. Hemorrhage un- controllable.

AUTHOR'S TABLE OF CASES OF TUBAL PREGNANCY. — *Concluded.*

Number.	PATIENT OF	Date.	Age.	Previous preg- nancies.	Time elapsed since last men- strual period.	Rupture.	Location.	Symptoms.	Treatment.	Result.	Remarks.
6	{ Dr. Geo. E. Percy, Salem, Mass. }	{ Feb. 20, '92. 30 }		1	2 mos.	Broad ligament.	Left.	{ Pain in left side. Con- tinuous shreddy bloody discharge. Irregular re- currence of pain, always in left side. Tumor in left ovarian region, size of goose egg. Periodical attacks of pain radiating all over lower part of abdomen. Irreg- ular bloody discharge. Finally, a terrific attack of pain, with faintness, three weeks before oper- ation. }	Electricity.	Recovery.	{ A tumor still re- mains in the left side. }
7	{ Dr. A. B. Sherburne, Portsmouth, N. H. }	{ April 28, '92. 26 }		0	4 mos.	Intra-peritoneal.	Right.		{ Laparotomy. Ab- domen found full of clots. Gesta- tion sac enucle- ated and cut away. }	Recovery.	.....

